SERVICE BULLETIN

YRV (K3)

No. SB010202

SUBJECT: CHECK AND ADJUSTMENT OF VALVE CLEARANCES IN YRV IN-VEHICLE SERVICING OPERATION

We have received reports from some dealerships, in which they said that they were unable to perform the check and adjustment of valve clearances in YRV in-vehicle servicing operation. Hence, we will issue a manual that describes the details of work procedures for them. Please use it as a version supplemental to Type K3 engine, as required.

Furthermore, we are advancing our revising of the maintenance schedule of the whole motor vehicle so that the check and adjustment of valve clearances, too, may further be simplified.

DAIHATSU

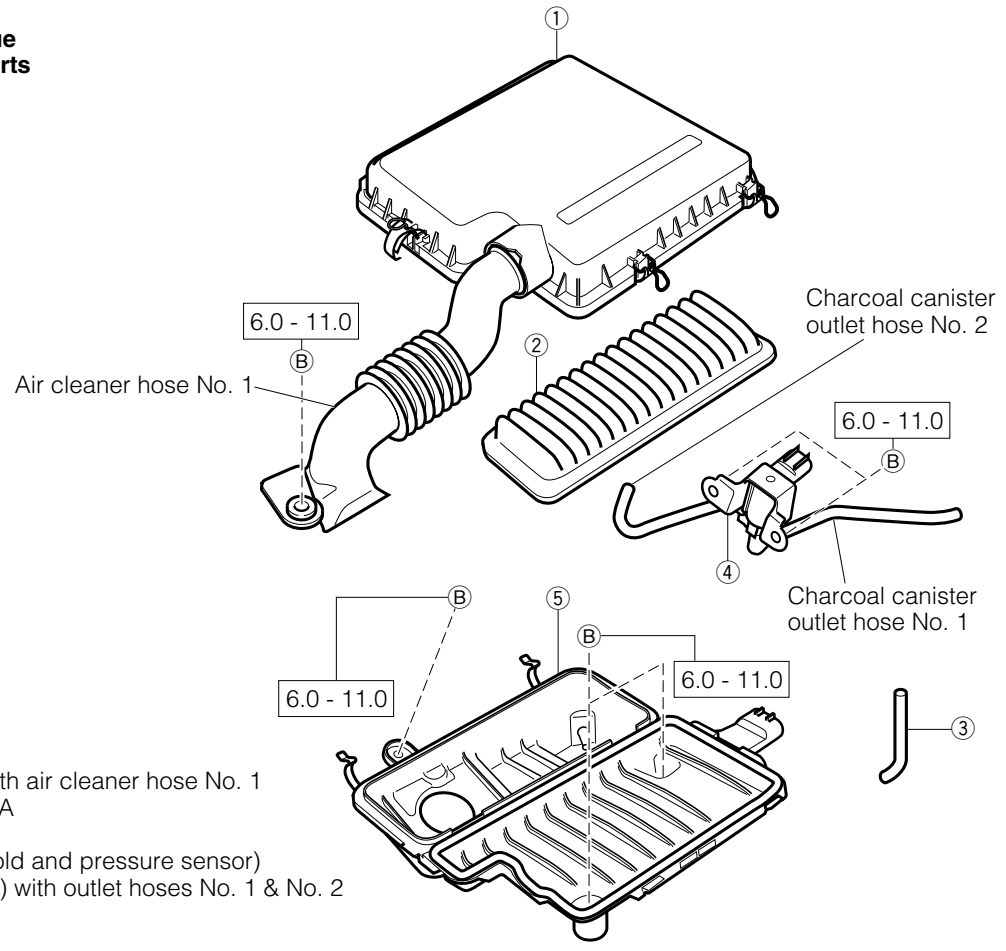
DAIHATSU MOTOR CO., LTD.
OVERSEAS SERVICE DIVISION

CHECK AND ADJUSTMENT OF VALVE CLEARANCE

The following shows the in-vehicle check and adjustment procedures for the valve clearance. This information has been prepared based on the Type K3 Engine Service Manuals (No. 9737, 9232 and 9237) that have been already published. Therefore, for tightening torque, disassembling and assembling procedures that are not mentioned, please refer to these manuals.

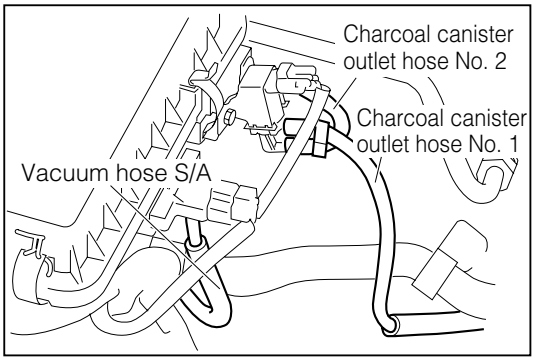
1. Removal of air cleaner
   The following is the removal/installation procedure for the air cleaner.
   (1) Operations prior to removal
   Disconnect the cable from the negative (–) terminal of the battery.
   NOTE:
   - It should be noted that the memories of the diagnosis results, radio, etc. will be erased at the same time when the cable is disconnected from the negative (–) terminal of the battery.

   (2) Removal and installation procedures

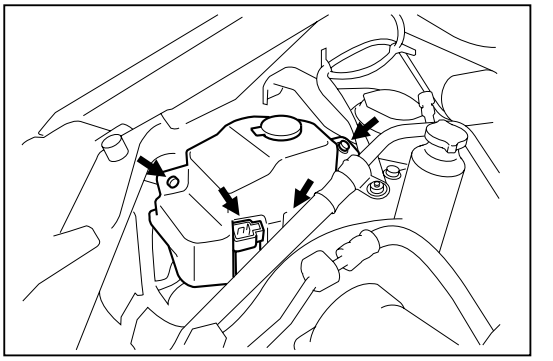

: Tightening torque
★ : Non-reusable parts
Unit : N·m
6.0 - 11.0
Air cleaner hose No. 1
Charcoal canister outlet hose No. 2
6.0 - 11.0
Charcoal canister outlet hose No. 1
6.0 - 11.0
6.0 - 11.0
① Air cleaner cap S/A with air cleaner hose No. 1
② Air cleaner element S/A
③ Vacuum hose S/A
(Between intake manifold and pressure sensor)
④ VSV (for purge control) with outlet hoses No. 1 & No. 2
⑤ Air cleaner case S/A

   (3) Main points of removal
   (a) With the air cleaner hose No. 1 connected, remove the air cleaner cap subassembly ①.
   (b) Disconnect the connectors of pressure sensor and intake air temperature sensor. With the harnesses and hoses connected, remove the VSV for purge control ④. Then, remove the air cleaner case subassembly ⑤.

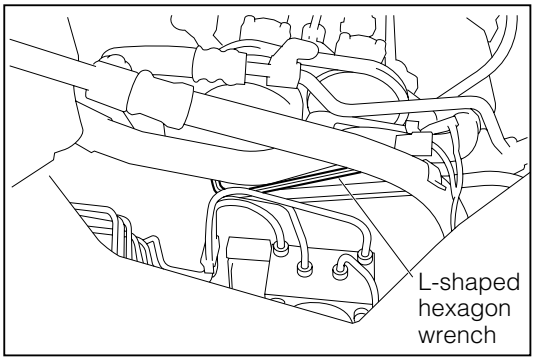
(4) Main points of installation
(a) Install the VSV for purge control ⑤ in such a way that the outlet hoses No. 1 and No. 2 may not be twisted, as indicated in the figure on the right.
(b) Install the vacuum hose subassembly ③, as indicated in the figure on the right.



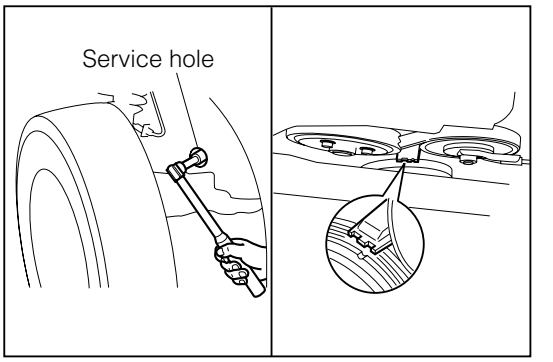
2. Removal of washer tank
(1) Disconnect the two harness connectors leading to the washer tank motor.
(2) Remove the two attaching bolts. Then, with the washer hose connected, take out the washer tank and place it between the hood and the windshield glass.
NOTE:
- Be sure to secure the washer tank by means of tapes, etc. so that it may not fall down.



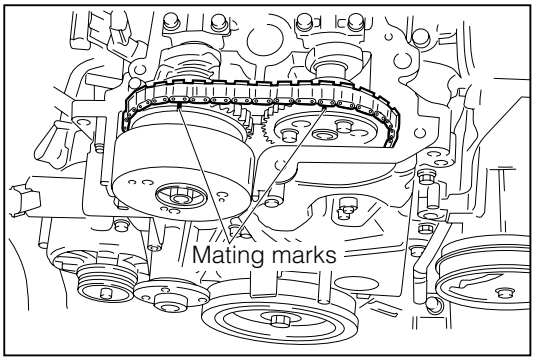
3. Remove the chain cover service hole screw plug, using a hexagon wrench.
NOTE:
- It is recommended to use an L-shaped hexagon wrench with a width across flats of 10 mm. (Approx. 50 mm × 180 mm)



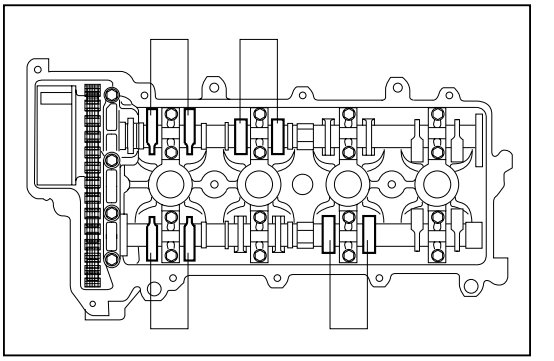
4. Remove the ignition coil cover and ignition coil.
5. Remove the cylinder head cover.
6. Turn the crankshaft in the normal direction, until the timing mark (V notch) of the crankshaft pulley is aligned with the indicator mark of the timing chain cover. (The cylinder No. 1 comes to the top dead center.)



7. Ensure that the mating marks of the camshaft timing sprocket face upward. In cases where the mating marks are not facing upward, turn the crankshaft one more turn. Then, ensure that the mating marks are facing upward. (The cylinder No. 1 comes to the top dead center under the compression stroke.)



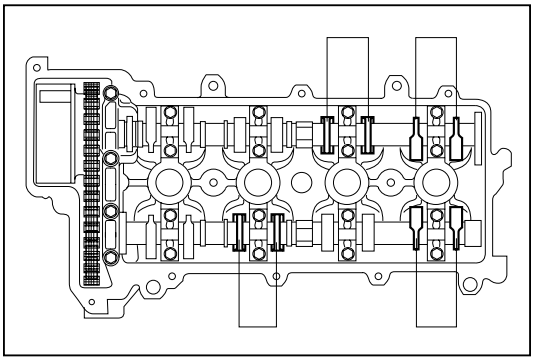
8. Check the valve clearance at the positions indicated in the figure on the right, using a thickness gauge.



Valves to be checked at time when cylinder No. 1 comes to top dead center under compression stroke

Cylinder No. 1		Cylinder No. 2		Cylinder No. 3		Cylinder No. 4	
IN	EX	IN	EX	IN	EX	IN	EX
○	○	○	—	—	○	—	—

9. Turn the crankshaft once so that the cylinder No. 1 comes to the top dead center under the exhaust stroke. Then, check the valve clearance at the positions indicated in the figure on the right.



Valves to be checked at time when cylinder No. 1 comes to top dead center under exhaust stroke

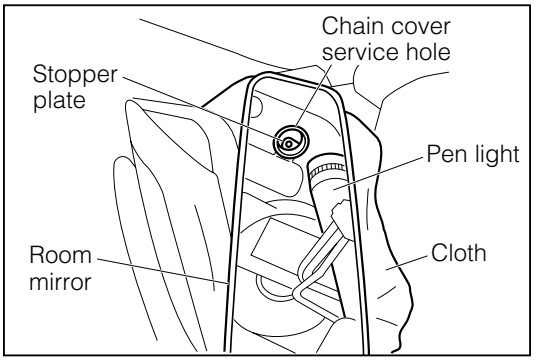
Cylinder No. 1		Cylinder No. 2		Cylinder No. 3		Cylinder No. 4	
IN	EX	IN	EX	IN	EX	IN	EX
—	—	—	○	○	—	○	○

10. If the measured value fails to conform to the specified value, remove the camshafts No. 1 and No. 2. Then, adjust the valve clearance to the specified value by replacing the valve lifter, following the procedure given below.
NOTE:
- Be sure to record the position of the valve which failed to conform to the specified value and the measurement results.
- For the adjustment procedure, refer to the section EM of the service manual described at the outset.

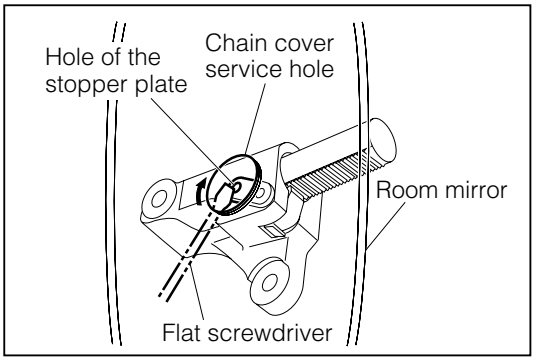
The following shows the in-vehicle removal and installation procedures for the camshafts No. 1 and No. 2.

(1) As prior operations, prepare a mirror (a room mirror is best fitted.), cloth, pen light and flat screwdriver whose tip width is relatively small.

(2) As indicated in the illustration on the right, place the room mirror on the cloth so that you can see the chain cover service hole.
At this time, secure the pen light in such a way that it can illuminate the service hole.



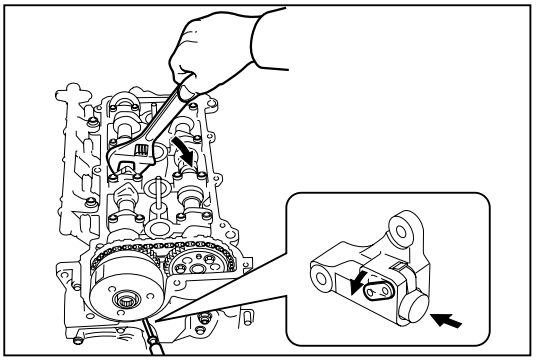
(3) While observing the mirror, apply the flat screwdriver to the hole of the stopper plate. Then, move it in the arrowheaded direction and hold it in a released state.



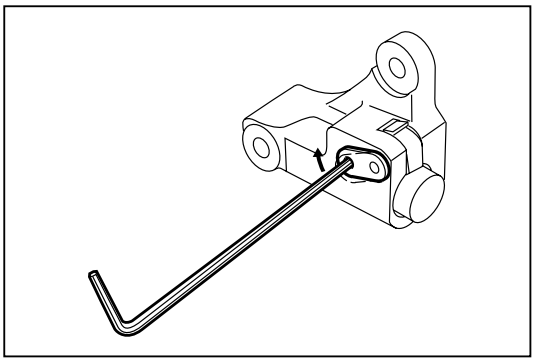
[Reference]

- Through this operation, the plunger of the tensioner will be unlocked.
- If any difficulty is encountered in releasing the lock of the stopper plate, slightly turn the stopper plate in right and left directions, using the hexagon section for servicing of the camshaft.
- Since this operation must be carried out while looking into the mirror, the actual operation becomes opposite to that reflected in the mirror. Therefore, it is necessary to get used to the operation.

(4) Slightly turn the camshaft to the right (normal turn), using the hexagon section for servicing of the camshaft, until the plunger section of the tensioner becomes in a pushed state by the chain.



(5) While holding the condition in Step (4), remove the flat screwdriver from the chain cover service hole. Then, insert a hexagon wrench with the hole of the stopper plate aligned with that of the tensioner.
Tool: Hexagon wrench (Width Across Flats: 2.5 mm)



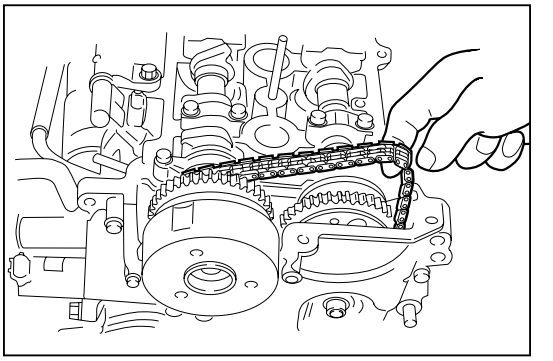
NOTE:

- The camshaft must be held, using the hexagon section for servicing.
- Be sure to secure the hexagon wrench by means of a tape, etc., so that it may not be pulled out.

[Reference]

- Through this operation, the plunger of the tensioner will be held in a pushed state.

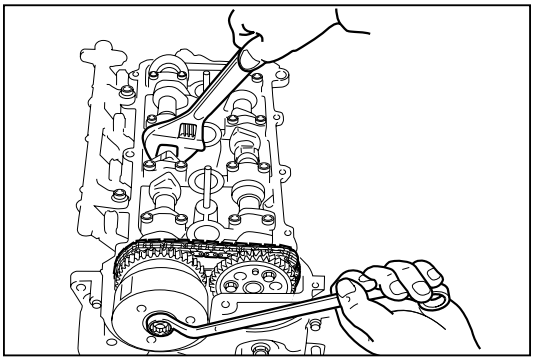
(6) Remove the chain from the camshaft timing sprocket.



(7) Remove the camshaft timing sprocket, using the hexagon section for servicing of the camshaft.

NOTE:

- The chain will interfere with the sprocket, for the bolt is loosened after the chain has been removed. Therefore, be certain to securely hold the camshaft so that it may not turn.



11. Assemble the camshafts No. 1 and No. 2.
    For the assembling procedure, refer to the section EM of the service manual described at the outset.
12. Install the cylinder head cover.
    For the assembling procedure, refer to the section EM of the service manual described at the outset.
13. Install the ignition coil and ignition coil cover.
    For the assembling procedure, refer to the section EM of the service manual described at the outset.
14. Install the chain cover service hole screw plug.
    Perform the tightening, using the hexagon wrench (Width across flats: 10 mm, L-shape (approx. 50 mm × 180 mm)) that was used during the removal.
15. Install the washer tank.
    Tightening Torque: 6.0 - 11.0 N·m
16. Install the air cleaner.
    For the assembling procedure, refer to page 1.
17. Connect the cable to the negative (–) terminal of the battery.